

# **Tribal And NWIFC Wild Salmon Recovery Efforts: Federal Funds At Work**



**A Report To Congress  
From The Treaty Indian Tribes  
In Western Washington  
FY 2004**

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*Cover: Terry Jones, Quileute, fishes near the mouth of the Quillayute River at LaPush. Photo: D. Preston*



# Foreword

This report outlines activities, accomplishments and additional funding needed for ongoing tribal efforts to recover wild salmon stocks with the aid of congressional appropriations for four initiatives: Pacific Coastal Salmon Recovery Program; Timber/Fish/Wildlife Forests and Fish Report; Hatchery Reform Project; and Coordinated Tribal Water Quality Program.

For FY 2004, Congress appropriated a total of \$3 million for Hatchery Reform efforts in western Washington, with western Washington treaty Indian tribes receiving \$711,845 of that amount. A total of \$89 million was appropriated for the Pacific Coastal Salmon Recovery Program, of which western Washington treaty tribes received \$6.93 million. For statewide tribal participation in the TFW/FFR initiative, Congress appropriated \$3.08 million. For the Coordinated Tribal Water Quality Program, tribes in Washington received \$374,900.

Because the tribes are co-managers of the salmon resource with the State of Washington and the federal government, full tribal participation is required in virtually all phases of natural resource management. Since the life history of salmon includes both freshwater and saltwater phases – and because all natural resources are interconnected – the complexity of salmon management is compounded by many water and land-use decisions. Forest practices and water quality

issues affecting wild salmon habitat, hatchery practices affecting the genetic integrity of wild salmon, and fisheries management actions affecting sustainable harvests are all key elements that must be addressed to achieve recovery.

For salmon to thrive, four biological needs must be met:

- ◆ An adequate supply of clean water;
- ◆ Properly functioning spawning and rearing habitat;
- ◆ Access to and from the sea; and
- ◆ A sufficient number of adult salmon returning to spawn.

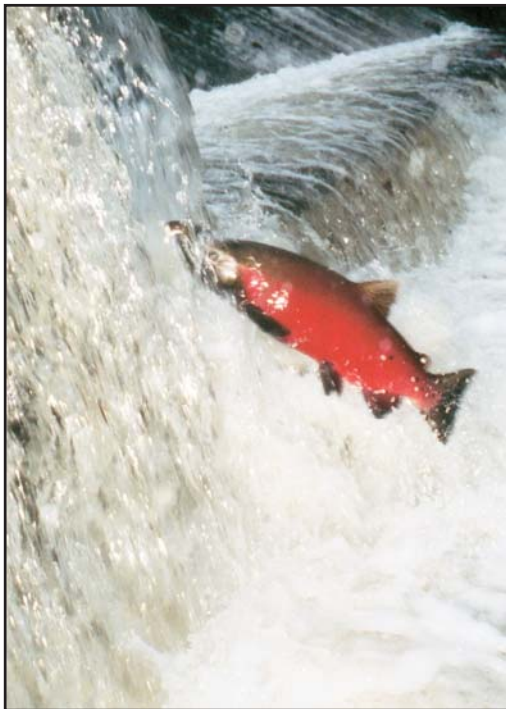
Providing these basic requirements, however, is one of the most difficult environmental, economic, political and social challenges ever faced in the United States.

It is clear that the battle to save the salmon cannot be fought alone. Only through cooperation and a shared vision for salmon recovery among tribal, state, federal and local governments, industry, conservation organizations and the public will wild salmon populations be restored.

One vehicle for that cooperation is the Shared Salmon Strategy for Puget Sound salmon recovery effort now being implemented in the State of Washington. The Shared Strategy has been endorsed by the National Marine Fisheries Service to develop recovery plans for Puget Sound salmon stocks listed as “threatened” under the federal Endangered Species Act.

Decades of insufficient funding for natural resource management activities have taught tribes to become highly effective at making each federal appropriation dollar work to its fullest. In a spirit of cooperative natural resource management that has prevailed in Washington since the 1980s, tribes partner with governments, agencies, organizations and others to achieve the most efficient and effective use of limited federal funding. Tribes also coordinate their efforts inter-tribally, grouping efforts in shared watersheds and marine areas. Tribes further coordinate their efforts through tribal organizations such as the Northwest Indian Fisheries Commission and Point No Point Treaty Council, which enable tribes to achieve an economy of scale by providing centralized services.

Wild salmon recovery in Washington will not occur without meaningful participation by the treaty tribal co-managers. No other group of people knows salmon like the tribes. No group has a higher stake in ensuring the salmon’s survival than a people who have always depended on salmon for their own spiritual, cultural and economic survival.



A coho salmon returns to spawn in the Salmon River on the Washington coast.

# Introduction

For millennia, Indian tribes have lived in the river valleys of what is now the State of Washington. As part of those ecosystems, they have co-evolved with the natural resources of the region. Tribal cultures have always been centered on fishing, hunting and gathering the natural resources of this region.

In the mid-1850s, the United States government sought land in the Pacific Northwest for non-Indian settlers. In exchange for all of the land that is now western Washington, the tribes signed treaties with the federal government that reserved their right to harvest salmon in all traditional places. The tribes also reserved rights to hunt and to gather shellfish and other foods.

Those promises were broken in the decades that followed. Tribes were systematically denied the opportunity by the State of Washington to exercise their treaty-reserved rights. In the 1960s tribal members were jailed when they fished in protest; their boats and catches were confiscated.

In 1974 federal courts re-affirmed the tribes' treaty reserved rights in *U.S. vs. Washington* (the Boldt Decision). The ruling, later upheld by the U.S. Supreme Court, established the tribes as co-managers of the resource entitled to half of the harvestable number of salmon passing through their traditional fishing areas.

Today, the wild salmon upon which the tribes have always depended are disappearing. Past over-harvest has driven down salmon populations. More than a century of timber harvesting, dam construction, rapid population growth and other factors have destroyed and degraded important salmon spawning and rearing habitat. Salmon hatcheries designed to compensate for the loss of natural production threaten the genetic integrity and ability of wild salmon to compete for food. All of these factors and more have contributed to the decline of wild salmon in western Washington.

In the spring of 1999, the National Marine Fisheries Service listed three western Washington salmon stocks – Puget Sound chinook, Hood Canal/Eastern Strait of Juan de Fuca summer chum, and Lake Ozette sockeye – as “threatened” under the Endangered Species Act. The ESA is a law of last resort to save distressed species from extinction, protecting not only listed salmon but

## Treaty Indian Tribes In Western Washington



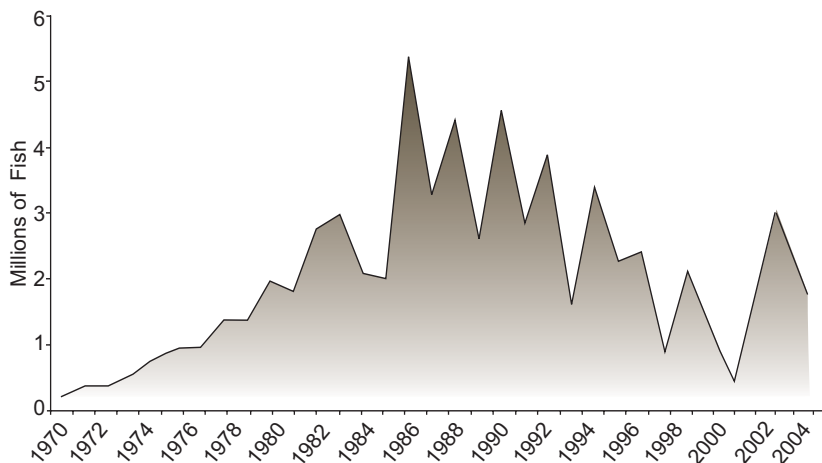
also their habitat. The listing was the first of a species that resides in a heavily urbanized area such as Puget Sound, and has placed massive new responsibilities on the treaty tribes as co-managers of the salmon resource.

While the ESA is neither the starting point nor end point for salmon recovery, it is now the standard by which actions potentially harmful to these listed species are evaluated as individuals, corporations, industries and governments seek to develop recovery plans in a manner consistent with the ESA and the needs of salmon.

In response to dwindling populations, and reflecting a commitment to sustainable fisheries, tribes and the state have worked together to reduce their harvest of salmon by up to 90 percent over the past two decades. Improved ocean conditions have contributed to larger returns in the past few years, however, continued loss and degradation of salmon spawning and rearing habitat continue to drive downward the overall trend for wild salmon populations.

More recently, many local governments have begun developing strategies to meet the needs of people and salmon at the watershed level, and several large land-owners and industry sectors are stepping forward to pioneer better ways to achieve business objectives while protecting and restoring functioning ecosystems that support salmon.

### Tribal Salmon Harvests In Washington 1970-2004



establishes, organizes and manages these links; identifies necessary long- and short-term actions and coordinates funding needs; and proposes laws or policies needed to support wild salmon recovery.

Key to the Shared Strategy's potential for success is the endorsement and participation by the National Marine Fisheries Service, the federal agency responsible for implementing the ESA.

The Shared Strategy is on track to deliver a draft recovery plan by June 2005. In the past five years much has been accomplished. An outline of the recovery plan has been prepared, implementation guidelines for watersheds have been created, and planning ranges and targets have been provided to all watersheds with

chinook populations.

Other accomplishments and activities include:

## A Shared Strategy For Salmon Recovery

In the fall of 1999, more than 200 tribal, federal, state and local leaders met to discuss the wild salmon crisis. They identified common goals and began to look for ways to achieve those goals. Their vision is clear: healthy ecosystems to produce and support wild salmon at a level that will once again sustain commercial, ceremonial and subsistence harvest. Equally clear is the need for a common approach to reach those goals.

The Shared Salmon Strategy for Puget Sound reflects the following core elements necessary to protect and restore wild salmon and their habitats. They include:

- ◆ Sound science to guide and measure recovery efforts;
- ◆ Clear and common goals to unite local, regional and national commitments;
- ◆ Effective planning to develop integrated, efficient methods of achieving shared goals;
- ◆ Successful actions to protect and restore wild salmon populations;
- ◆ Accurate monitoring to ensure progress and accountability; and
- ◆ Sufficient funding to sustain protection and restoration efforts of the key participants.

The Shared Strategy is not a top-down approach to wild salmon recovery. It is a collaborative effort that links ongoing wild salmon recovery initiatives at the tribal, state, federal and local levels to create a plan that is viable and cost-effective. The Shared Strategy

- ◆ To date, 13 of 14 watersheds have submitted chapters for a regional recovery plan; the remaining watershed is working to organize its planning activities to participate.
- ◆ The state's Puget Sound Action Team is leading the effort to draft a nearshore marine component for the recovery plan.
- ◆ Watershed planners presented their preliminary views on what is required to achieve the planning.
- ◆ Work is under way to develop a financing plan for implementing recovery actions.
- ◆ Key participants at the watershed, regional, tribal, state and federal levels have begun discussions on integrating harvest and hatchery management plans into the recovery plan.

Meanwhile, many other ongoing local and regional efforts contributing to wild salmon recovery will continue. One example is the Hatchery Reform Project, a systematic, science-driven examination of how hatcheries can help recover and conserve naturally spawning salmon populations and support sustainable fisheries. The Hatchery Reform Project has two goals: help recover and conserve naturally spawning populations; and support sustainable fisheries. Now in its fifth year, the tribal and state co-managers have begun to implement more than 1,000 recommendations developed by an independent Hatchery Reform science panel to aid recovery of wild salmon through improved hatchery management practices.

## Funding Coordination And Accountability

The Northwest Indian Fisheries Commission (NWIFC) serves as the coordinator for funding provided for the Timber/Fish/Wildlife (TFW) Forests and Fish Report; Hatchery Reform; Pacific Coastal Salmon Recovery Program; and Coordinated Tribal Water Quality initiatives. This is a critical role that can only be performed by the NWIFC as an arm of the tribes.

The NWIFC was created in 1974 by tribes party to the *U.S. vs. Washington* litigation that re-affirmed tribal treaty-reserved rights and established the tribes as co-managers of the salmon resource with the State of Washington. Assisting member tribes in conducting biologically sound fisheries and providing a unified voice on fisheries management and conservation issues are the missions of the NWIFC. Member tribes are Nisqually, Squaxin Island, Puyallup, Jamestown S'Klallam, Port Gamble S'Klallam, Lower Elwha Klallam, Skokomish, Swinomish, Sauk-Suiattle, Upper Skagit, Tulalip, Makah, Stillaguamish, Muckleshoot, Suquamish, Nooksack, Lummi, Quinault, Quileute and Hoh.

The NWIFC employs about 75 full-time employees in its Administration, Fishery Services, Habitat Services and Information and Education Services divisions. Most commission staff provide direct services to member tribes – ranging from fish health to statistical analysis – bringing together professional experts in an economy of scale that enables tribes to efficiently utilize limited federal funding. Employing sound project management techniques, the NWIFC provides coordination and technical services that help tribes make the most efficient possible use of salmon restoration funding.

The NWIFC has a solid record of effective coordination and representation. Mature grant contracts which the commission administers annually for member tribes include the \$1.7 million Western Washington Boldt Case Area Funds, the \$1.6 million U.S./Canada Pacific Salmon Treaty Contract, and the \$109,000 Timber/Fish/Wildlife Contract, as well as a number of one- to three-year project-specific grants.

### Tribal Natural Resource Management

Ongoing Wild Salmon Recovery Programs And Current Overall Congressional Funding Levels	Source	FY2004 Level	FY 2006 Tribal/NWIFC Congressional Request Level/Need
Hatchery Reform (\$3 million)	DOI/FWS or BIA	\$711,845 to tribes/NWIFC	Base of \$1 million with \$5 million/year for hatchery retrofit
Coastal Salmon Recovery (\$89 million)	DOC/NMFS	\$6.93 million to tribes/NWIFC	Base of \$110 million with \$9 million to tribes
Forest & Fish Report (\$3.08 million)	DOI/BIA	\$3.08 million to tribes/NWIFC	Base of \$3.08 million
Wild Stock Restoration Initiative/SSHIAP (\$400,000)	DOI/BIA	\$400,000 to NWIFC	Base of \$400,000 + \$75,000 new
Coordinated Tribal Water Quality \$374,900	EPA	\$374,900	\$374,900 + \$ 375,000 new
<b>Emerging Needs</b>			
Water Resources Management (\$0)	DOI/USGS	\$0	\$3.72 million
Agricultural Practices (\$0)	DOA/FSA	\$0	\$1.87 million
Shoreline Rules (\$0)	DOC/NOS	\$0	\$120,000
NEPA Compliance (\$250,000)	DOI/BIA	\$250,000	\$250,000



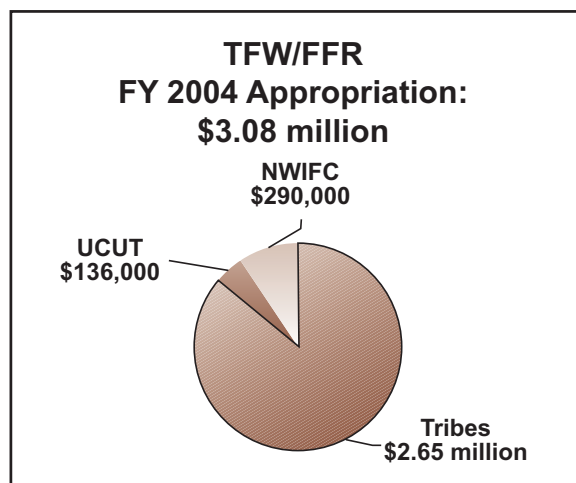
# Timber/Fish/Wildlife Forests And Fish Report

## Introduction

Tribal participation is a critical component in the implementation of the Timber/Fish/Wildlife (TFW) Agreement/Forests and Fish Report (FFR), and for evaluation of forest management impacts upon treaty-protected resources. The Environmental Protection Agency (EPA), National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service (USFWS) rely heavily on tribal participation and information to ensure and help gauge its success. Tribes offer a centuries-old tradition of resource stewardship, practice state-of-the-art technological innovation, and are strategically located to respond to critical management needs in their local watersheds. There are three distinct advantages to the tribal process and structure. First, it provides a broad base of local participation that involves each tribal government in the process. Second, it provides tribal and local governments with flexibility to address regional and political differences. Third, this process and structure is efficiently based without a top-heavy bureaucratic response that is costly and slow to react to environmental problems.

Congress appropriated \$3.048 million per year for FY 2000-2002; \$3.068 million in FY 2003; and \$3.08 million in 2004 to fund tribal participation in implementing FFR, in cooperation with federal and state governments, the timber industry and other interest groups. Annually, each of 27 participating federally recognized tribes receives \$100,846 to support their goals and participation. Secondly, \$136,000 is designated to accomplish coordination of tribal involvement in eastern Washington through the Upper Columbia United Tribes. To complete the tribal program, \$290,000 is assigned for central policy and technical coordination of tribal FFR implementation statewide through the NWIFC. Incremental funding increases in FY 03 and 04 funding were used collectively to accomplish targeted projects such as the development of an adaptive management manual.

Tribes will continue to need \$3.08 million for participation in FFR implementation FY 06. This appropriation request is intended to maintain existing programmatic infrastructure and activities and to begin building the effectiveness monitoring and data management structures necessary to implement adaptive management and maintain program accountability. Work is ongoing to stabilize this funding by building it into the base funding.



## Background

More than a decade ago, treaty tribes and other stakeholders in forest resources within the State of Washington agreed to find common ground for responsible and sustainable natural resource management instead of waging costly and lengthy battles in the courts to resolve their differences. The result was the unprecedented Timber/Fish/Wildlife (TFW) Agreement. Since then, the tribes and tribal organizations in the State of Washington have participated in the TFW Agreement, along with the timber industry, state government, and the environmental community.

A variety of factors – including the listings of several western Washington salmon stocks under the Endangered Species Act (ESA), ongoing statewide water quality degradation, and concern over the continued economic viability of the timber industry – brought TFW participants together in November 1996 to develop joint solutions to these problems. Federal and local governments participated with original TFW members in what is commonly referred to as the TFW “Forestry Module Negotiations,” a significant component of Washington’s statewide salmon recovery effort. The result was completion of the Forests and Fish Report (FFR) in April 1999. The cooperative natural resource management process, which updated forest practices rules, obtained federal assurances for ESA considerations, and established research and monitoring programs, was adopted by the Washington State Legislature in May 2000.

FFR is based on four goals:

- ◆ To provide compliance with the ESA for aquatic and riparian-dependent species on non-federal forest lands;
- ◆ To restore and maintain riparian habitat on non-federal forest lands to support a harvestable supply of fish;
- ◆ To meet the requirements of the federal Clean Water Act for water quality on non-federal forest lands; and
- ◆ To maintain the economic viability of the timber industry in the State of Washington.

The six caucuses participating in TFW/FFR implementation are:

- ◆ The Federal Government Caucus represented by National Marine Fisheries Service (NMFS), U.S. Environmental Protection Agency (EPA), and U.S. Fish and Wildlife Service (USFWS);
- ◆ The Tribal Caucus represented by individual tribes and Indian nations in the State of Washington;
- ◆ The State Government Caucus represented by the Department of Natural Resources (DNR), Department of Ecology (DOE), Washington Department of Fish and Wildlife (WDFW), and the Governor’s office;
- ◆ The Local Government Caucus represented by the Washington Association of Counties and individual counties;
- ◆ The Conservation Caucus represented by the Washington Environmental Council, American Lands Alliance, Northwest Ecosystem Alliance, Pacific Rivers Council, Washington Forest Law Center, and Washington Trout; and

- ◆ The Timber Landowner Caucus represented by the Washington Forest Protection Association, the Washington Farm Forestry Association, and individual timber companies and small landowners.

## Tribal Participation In TFW/FFR Implementation

The keystone of TFW/FFR for the tribes is the Adaptive Management Program. Continued implementation of this program is critical to TFW/FFR success. Adaptive management is the process of evaluation and monitoring to constantly gauge the effectiveness of management practices and determine if changes are needed. This ranges from the use of Interdisciplinary (ID) Teams to properly implement the rules in complex site-specific situations, to conducting long-term effectiveness monitoring to establish whether the rules are meeting resource objectives. The tribes were the lead authors of adaptive management rule language that was unanimously supported by the other TFW/FFR caucuses. The tribes have also taken the lead on developing two key documents in support of this process including the Adaptive Management Program Manual and the Protocols and Standards Manual for the science arm of the program.

Tribes support compliance monitoring as a link in the chain of the Adaptive Management Program. Compliance monitoring will establish the extent to which forest practice rules are being followed. A critical assumption of effectiveness monitoring is that rules are being correctly applied on the ground. This assumption must be validated. Compliance monitoring may also enlighten managers on the need for training, rule clarification or additional enforcement. Tribes and other TFW/FFR cooperators continue to stress to the Washington Department of Natural Resources (DNR) the critical need for adequate forest practice rules enforcement and development of a scientifically rigorous compliance monitoring program. Tribes also are engaged in independent compliance monitoring studies in cooperation with individual landowners.

Another factor linked to the success of TFW/FFR is the cooperative decision-making process. This process has been most successful for the tribes as the consensus-based approach acknowledges their management authority regarding forest practices management. Through this approach, the tribes have demonstrated their ability to establish and maintain a cooperative process for the management of forest resources while



incorporating tribal concerns. As they have throughout the TFW/FFR process, participating tribes utilize the NWIFC for technical expertise and to coordinate a programmatic work plan.

Tribal involvement with FFR implementation has evolved with the availability of federal funds to support those efforts. The tribal TFW/FFR program for evaluation of forest management impacts upon treaty-protected resources is furthering the development of tribal capacity in the areas of silviculture, geology, and hydrology to complement tribal fisheries expertise.

The tribes continue to develop and implement a comprehensive work plan evaluating the forest management guidelines set forth in the FFR for adequacy in meeting tribal salmon recovery goals. They have developed a comprehensive communication network and a coordinated tribal response to improve the application of FFR objectives in watersheds throughout the State of Washington. The tribes are working closely with federal agencies in respect to trust relationships and in providing technical support in response to ESA listings in the forested landscape.

## Key Work Plan Elements

The tribal work plan has been developed to promote active participation in the TFW/FFR stakeholder process, to provide scientific and technical support for tribal adaptive management project implementation, and to assist the tribes in addressing their specific issues and concerns.

Key work plan elements include:

Tribal TFW/FFR program development and coordination: NWIFC provides the lead program development and coordination to tribes in the State of Washington. A full-time coordinator, silviculturist, and geomorphologist/hydrologist have been hired as the program's core team leaders to provide the communication and scientific expertise to assist the tribes in implementing TFW/FFR. An e-mail distribution system, video conferencing system, and Web site are used to facilitate dissemination of information and support continued development of the work plan. Program work plan priorities and strategies are continuing to develop to address key near- and long-term issues.

Forest Practices Board (FPB) support: The NWIFC coordinates a policy and technical support network for the tribal representative on the FPB. Participation at this

level was especially important during the permanent rule drafting process and continues to provide guidance for adaptive management implementation.

**TFW Policy Committee Participation:** The TFW Policy Committee is composed primarily of FFR representatives of the various caucuses that negotiated FFR. The tribes continue to build a strong presence on this committee to help direct forest practices policy and actions. A tribal representative recently was appointed co-chair of this committee.

**Adaptive Management Program Participation:** The TFW/FFR Adaptive Management Program is the heart of the tribal scientific/technical effort and is considered the cornerstone for successful implementation of FFR. The tribes continue to take leadership roles implementing program elements including the development of the FPB Adaptive Management Program Manual. The tribes have successfully proposed and are funding the development and writing of this critical manual within the TFW/FFR process with an expected completion date of December 2004.

**Monitoring Design Team (MDT) Participation:** The tribes have three participants on the 10-member MDT. The MDT is a "blue-ribbon" panel of scientists that have been charged to help shape the overall Cooperative Monitoring, Evaluation and Research (CMER) monitoring program by developing a comprehensive and integrated design. This design is to serve as a framework for conducting ongoing and future monitoring activities, and to ensure that those activities contribute appropriate and timely information. The tribal participants are taking lead roles including coordination and finalizing the team report. The March 2002 draft of the MDT report is currently being used to help CMER design their 2004 work plan and set the framework for comprehensive multi-year work plan objectives.

**Implementation of New Permanent Forest Practices Rules:** On May 17, 2001, the Forest Practices Board passed permanent forest practices rules adopting most of the provisions of the FFR. The rules went into effect on July 1, 2001. The tribal program has now redirected its efforts to completing implementation of the guidance and tool requirements of the rules. This includes many unfinished forest practices board manuals, a CMER protocols and standards manual and work plan, the last fish/last habitat water type model and maps, mass wasting screening tools, alternate plan strategies, and road maintenance and abandonment evaluations.

Cooperative Monitoring, Evaluation and Research (CMER) Committee Participation: Tribes participate extensively in CMER and contribute significantly to the leadership and work of the CMER-appointed scientific advisory groups. CMER has initiated and funded over 30 scientific projects to date. The top projects of tribal interest include a study to validate the desired future condition basal area performance targets for western Washington riparian stands, continued development and testing of a GIS-based model that predicts the uppermost extent of fish habitat on streams, a study to validate the basin-area relationship rules for determining the upper extent of perennial non-fish bearing water on streams, multiple studies to validate statewide road and mass wasting rules, and a project to compile and evaluate existing literature and data related to riparian disturbance regimes in eastern Washington. Several of these are now emerging from the science arm of the adaptive management program and results will be discussed soon at the TFW/FFR Policy Committee level.

Field Implementation of Forest Practices Rules: One of the most critical elements of TFW and FFR continues to be the Interdisciplinary (ID) Team process. This process functions to solve problems at the planning stages, which is the stage at which everyone has the most flexibility. Between the various tribes, it is estimated that more than 5,000 individual forest practices applications (FPAs) are reviewed each year. Up to a quarter of these, and perhaps more, will trigger resource concerns that cause tribes to contact landowners for clarification or immediate correction. Many FPAs will require an on-site visit to review and evaluate conditions before approval by DNR. Tribes consider this a basic component of adaptive management at the FPA scale that utilizes DNR's conditioning authority to adjust broad regional or statewide rules to meet FFR resource objectives on complex or unexpected local conditions.

## Tribal TFW/FFR Projects

### Tulalip, Nooksack, Swinomish And Sauk-Suiattle Tribes *Protecting Tributary Streams*

Many of the tiny tributary streams trickling through the hills of western Washington may not bear fish, but they are important sources of water, wood and spawning gravel needed for healthy, salmon-producing rivers.



Small streams play a big role in ensuring good salmon habitat.

Yet these smaller streams don't receive the same level of protection as other streams do.

Tribal scientists in the North Sound are researching these small streams, documenting their essential functions, and studying whether stricter protections are needed.

"Though the streams we're looking at don't produce fish, they do contribute to the ecology of the region in several ways," said David Luzi, a geomorphologist with the Tulalip Tribes.

Biologists from the Tulalip Tribes, the Nooksack Tribe and the Skagit River System Cooperative are studying old growth, second growth and third growth tree stands near streams in the Nooksack, Stillaguamish and Skagit basins. The Skagit River System Cooperative (SRSC) is the natural resources arm of the Swinomish and Sauk-Suiattle tribes.

"Because tribes are located strategically throughout our watersheds, we are uniquely suited to perform this type of vital research," said Bob Kelly, director of Nooksack Natural Resources. "We bring a long tradition of resource stewardship to the table, and this work is just another example of that."

To protect salmon, loggers and developers are required to leave a buffer zone between their work and the river systems that produce salmon. But regulations adopted under the Forests and Fish Report (FFR) agreement offer lesser protection for streams that do not produce fish. For example, timber harvesting can occur much closer to these creeks than others.

Under FFR rules, perennial streams that don't produce fish are only required to have buffers for half their length – the other half remains unprotected. Seasonal non-fish-bearing streams receive no buffers at all.

“Our research will help determine the best course to take in protecting these streams,” said Curt Veldhuisen, a hydrologist with SRSC. “Tougher regulations might be needed to protect fish and wildlife, and this work will help determine that.”

Without buffers in place, logging can occur extremely close to streams. This can harm salmon habitat directly – and indirectly – by preventing wood from entering the river system. Wood is beneficial to fish, since it stabilizes the stream bank and provides refuge for young salmon.

The research began last summer and continues through 2005.

### **Nisqually Tribe** *Forest Practice Alternate Plans*



Streamside vegetation is an important component of salmon habitat.

Privately owned forests with good quality salmon habitat are rare along the mainstem Nisqually River. To make sure these forests provide a good home for salmon the Nisqually Indian Tribe reviews forest practice applications (FPAs) and works with landowners.

The Nisqually Indian Tribe recently reviewed an FPA from a private landowner who wanted to harvest timber along a section of riverside forest land. The landowner planned to convert the land from an alder stand into a conifer tree farm. “While conversion from an alder to conifer riparian (streamside) area is a good thing for salmon habitat in the long run, the transition needs to be done so that short-term impacts are minimized,” said Joan Miniken, TFW biologist for the Nisqually Tribe.

To make sure the proposed forest practice would not harm salmon, an Interdisciplinary Team was called in to review the application. In addition to Miniken, representatives from the state Department of Ecology and Department of Natural Resources also participated.

The tribe also enlisted Steve McConnell, a silviculturist with the Northwest Indian Fisheries Commission. “By having Steve in the process, it provided additional expertise and another set of eyes,” said Miniken.

An alternate plan proposed by the landowner would have allowed harvest closer to the bank of the Nisqually than would have been allowed under state forest practice rules, potentially jeopardizing protection of the public resource. Although replacement of the alders with a conifer stand would be beneficial for salmon, too much removal too quickly could be harmful.

“Conifers are much more valuable than alder to salmon in today's habitat,” said Miniken. “They provide more shade and build stronger logjams that in turn provide habitat for salmon.

“We suggested that the landowner increase underplantings of conifers after harvesting the alder, and follow up with vegetation control to improve growth and survival,” said Miniken. The mainstem Nisqually River is especially important to chinook salmon, which are listed as “threatened” under the federal Endangered Species Act.

“This is a good example of a tribe working with a landowner, and conserving and creating habitat for the good of the salmon, while ensuring economic opportunities for private landowners,” said Miniken.

### **Spokane Tribe** *Riparian Characterization*



Cataloging vegetation along streams helps protect salmon habitat.

To preserve fish and wildlife habitat, the Spokane Tribe is documenting the characteristics of timber stands along numerous streams.

In cooperation with the Kalispel and

Colville tribes, the Spokane Tribe is recording what types of vegetation and trees are within riparian (streamside) areas to better understand the habitat that is available for fish and wildlife. The study will help the tribes manage timberlands without harming that important habitat.



“This work will help us determine the relationship between buffer zones along these streams and the resulting habitat,” said Daniel McMeekan, TFW/FFR biologist for the Spokane Tribe. A buffer zone is a stand of trees left along a stream after a timber harvest. “The more information we have about these riparian areas and their functions, the better timber management decisions we can make.”

Riparian forests are important because they provide shade that cools the water, keeping it at an ideal temperature for fish. Plus, over time, some trees will fall into the stream, creating habitat for juvenile and adult fish.

Riparian forests also help with water quality. Acting as a natural buffer, the riparian area keeps sediment and pollutants, often from storm-water runoff, from flowing into the stream.

The cooperative riparian inventory project also includes:

- ◆ Documenting the height and age of trees. The age is determined by taking core samples.
- ◆ Measuring the width and depth of each stream.
- ◆ Inventorying large woody debris and the number of pools created within the stream. Pools are important because they provide a place for salmon and trout to rest.

For the Upper Columbia United Tribes – the Spokane, Kalispel and Colville tribes in Washington; and the Kootenai and Coeur d’Alene tribes in Idaho – the project is important because fish and wildlife are culturally vital to tribal members. Not only will tribal members benefit from healthy streams, however, so will the entire community.

“This is a great cooperative project,” McMeekan said. “By working together and bouncing ideas off one another, we are able to more effectively accomplish our goal of categorizing these important riparian areas. We all want to maintain these riparian areas and make sure these streams continue to be a healthy habitat for fish and wildlife.”

## Quinault Indian Nation *Stream Typing Model*

Stream typing was a fundamental part of the Timber/Fish/Wildlife (TFW) agreement. Physically walking miles of stream and determining the last place where upstream-bound fish appeared on every stream provided critical information for planning forest practices rules that protected fish.



Accurate stream classification is needed to ensure salmon habitat is protected.

The challenge today in the Forests and Fish Report process is to craft a computer model that predicts suitable fish habitat – not just the presence or absence of fish – as accurately as humans on the ground did. “It’s incredibly time consuming and expensive to constantly do stream-typing upgrading,” said Mark Mobbs, Quinault Natural Resources environmental protection manager.

The model’s creators are using the information gathered on the ground by Quinault Indian Nation and other stakeholders over a 10-day period that began in late 1980s. The model is designed to use existing data from a Geographic Information System (GIS) including gradient, elevation, basin size and rainfall to predict whether a stream segment on a map would be suitable fish habitat.

“The high cost of human surveying is what’s driving the creation of the model. But it’s difficult to come up with a model that everyone trusts,” said Mobbs. “With technicians on the ground, you know someone saw fish – and most private forestland owners are OK with that. But a model predicting fish in an area that seems unlikely to a landowner isn’t going to generate the same feeling of confidence. The reverse is also true. The model might say that a stream segment doesn’t contain habitat suitable for fish, and others will disagree.”

The past year has been spent field-testing the model and meeting in work groups to further refine parts of the model. Mobbs believes the success of the final product will hinge on accurate GIS data – which helps predict the presence of physical barriers to fish passage – not necessarily more physical checking for fish presence or absence.

Other tasks taken up by the work group this year include: providing field reviews to aid small forest landowners with questions about water typing; revising the forest practices board manual for the use of the model-developed water typing maps; and developing a training program for using the new maps.

The new model would not be possible without the work by tribes to upgrade stream typing information about 15 years ago. “The QIN freed myself and a few other technical staff to concentrate on stream typing starting in the late 1980s,” said Biologist Rich Potter, fish habitat biologist for the QIN. Potter, along with habitat technicians Justine James and Bruce Baxter, were reviewing more than 1,500 private timberland forest practice applications for impacts to fish. At first, they only looked at the section of stream that ran through the proposed harvest area.

“We were finding fish in many places listed as non-fish bearing, which is understandable in some ways,” said Mobbs. “It wasn’t a big priority for the Washington Department of Fish and Wildlife (WDFW) at the time.” In 1992, in cooperation with WDFW and Grays Harbor College, which provided a student as an additional technician, QIN technicians began a Stream Verification Project. More than 190 changes were submitted in 1993 and QIN began to map entire watersheds, adding large amounts of new information.

“Other tribes were starting to take notice of our work and began following suite,” said Mobbs. The QIN review process received a huge boost in 1994 when 13 technicians were paid for by a federal Jobs in the Environment grant. “We were able to complete a great deal more stream typing with the extra help,” said Mobbs.

“Early on, I was getting a number of challenges from landowners about where I was finding fish,” said Potter. “But after I took them out there and we found fish every time, they stopped calling.”

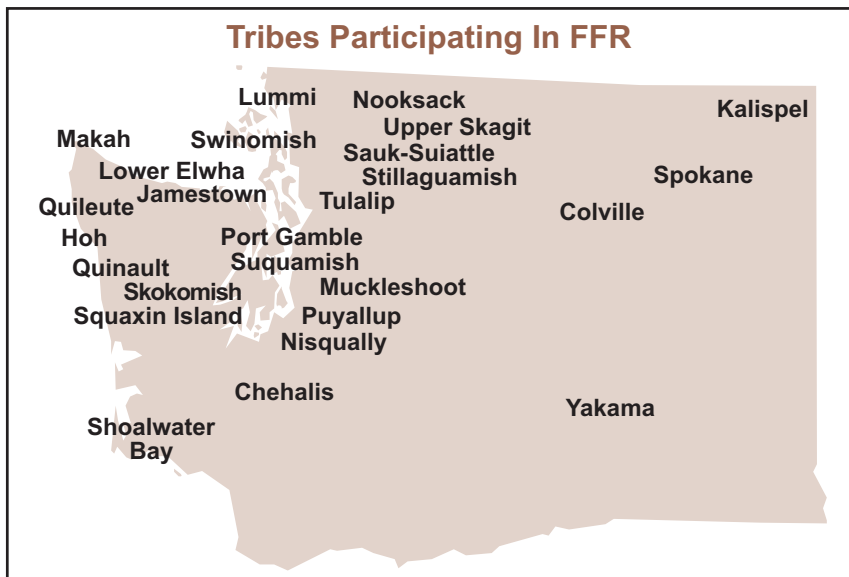
The volume of new information and huge numbers of changes that were submitted to WDFW helped pave the way for the emergency forest practices rule in 1998. The rules mandated extensive review of any proposed logging within 100 feet of a stream and any road building within 200 feet of streams. Prior to that, streamside buffers ranged from 25 to 100 feet, but some logging was usually permitted within the buffer, particularly since fish presence wasn’t well established in many of the smaller streams.

One of the more interesting findings included the discovery of fish above a 70-foot waterfall at the mouth of Laramie Creek. “There were fish throughout the system above the waterfall and nobody bothered to look because they presumed fish couldn’t get past the waterfall. That area was a good example of how fish could use step pools to get to areas presumed inaccessible to fish,” said Potter.

“Everything that came before was necessary for us to get to this point,” said Mobbs.

## Tribes And Tribal Organizations Participating In FFR

Participating individual tribes include: Chehalis Tribe, Colville Confederated Tribes, Hoh Tribe, Jamestown S’Klallam Tribe, Kalispel Tribe, Lower Elwha Klallam Tribe, Lummi Nation, Makah Nation, Muckleshoot Tribe, Nisqually Tribe, Nooksack Tribe, Port Gamble S’Klallam Tribe, Puyallup Tribe, Quileute Tribe, Quinault Indian Nation, Sauk-Suiattle Tribe, Shoalwater Bay Tribe, Skokomish Tribe, Spokane Tribe, Squaxin Island Tribe, Stillaguamish Tribe, Suquamish Tribe, Swinomish Tribe, Tulalip Tribes, Upper Skagit Tribe, and the Yakama Indian Nation. Participating tribal organizations include: Skagit River System Cooperative, Upper Columbia United Tribes, and the Northwest Indian Fisheries Commission.





# Hatchery Reform Project

## Introduction

The first salmon hatcheries in the State of Washington were built more than 100 years ago, largely to compensate for lost natural salmon production caused by damaged and disappearing habitat. Today more than 100 hatcheries are operated in Puget Sound and coastal Washington by the treaty Indian tribes, Washington State Department of Fish and Wildlife (WDFW) and the U.S. Fish and Wildlife Service (USFWS). These hatcheries supply nearly three-fourths of all salmon harvested in Puget Sound and are important for meeting treaty tribal harvest obligations.

The 1999 listing of several Puget Sound and coastal salmon stocks under the federal Endangered Species Act (ESA) placed a spotlight on all activities that might harm wild salmon, including hatchery programs.

Tribal, state and federal managers of Washington's salmon and steelhead must be certain their hatcheries do not harm several Puget Sound and coastal stocks listed, or proposed for listing, as "threatened" under the federal Endangered Species Act. Seeking to go beyond merely complying with ESA directives, the salmon managers seek to create a hatchery system that both helps to recover and conserve wild populations, and support sustainable fisheries.

Congress in Fiscal Year 2000 adopted and funded the recommendations of a science advisory team that launched the Puget Sound and Coastal Washington Hatchery Reform Project, a systematic, science-driven examination of how hatcheries can help recover and conserve naturally spawning salmon populations and support sustainable fisheries

Hatchery Reform means designing and operating hatchery programs in concert with the needs of wild salmon and steelhead populations. For example, hatcheries should not be viewed as a substitute for healthy spawning habitat, but rather as an extension of that habitat – a productive tributary of the river on which a hatchery is situated.

Hatchery Reform, together with ongoing habitat restoration efforts and strict harvest regulations is key to wild salmon recovery in Washington.

## Policy Development

Hatcheries play an important role in meeting tribal treaty harvest obligations. Federal court rulings have established the tribes as co-managers of the salmon resource with the State of Washington, and have affirmed that tribal treaty harvest rights include both hatchery and wild salmon.

As co-managers, the tribes and State of Washington are seeking to go beyond merely complying with ESA directives that hatcheries be operated to minimize risks to endangered fish. With the support of Congress and the State of Washington, considerable progress has been made in the short time that the Hatchery Reform Project has been under way.

The project has two purposes:

- ◆ Helping to recover and conserve naturally spawning populations; and
- ◆ Supporting sustainable fisheries.

There is a clear sense among decision makers that with an understanding of the history of hatcheries, a vision for how hatcheries can be managed differently in the future, and a comprehensive implementation plan that is based on solid science, there is good cause for optimism about the benefits of hatchery reform.

Federal appropriations have provided funding to:

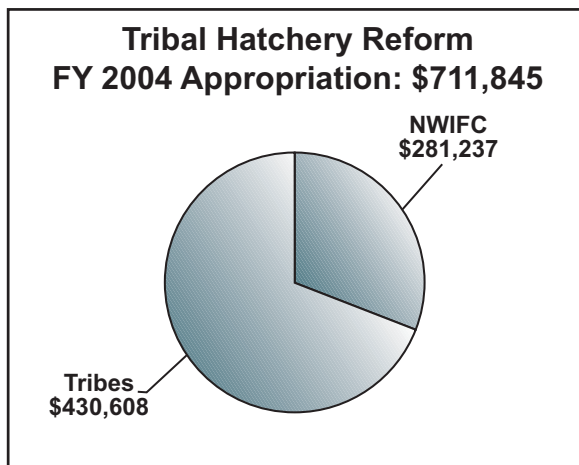
- ◆ Establish an independent scientific panel – the Hatchery Scientific Review Group (HSRG) – to ensure a sound technical foundation for hatchery reform;
- ◆ Provide a competitive grant program for needed research on hatchery impacts;
- ◆ Support state and tribal efforts to implement new hatchery reforms; and
- ◆ Provide for the facilitation of a reform strategy by an independent third party, the Long Live the Kings salmon conservation organization, to coordinate implementation of the reform effort.



## Funding Distribution

The majority of the Hatchery Reform funds received by member tribes and their Northwest Indian Fisheries Commission (NWIFC) since FY 2000 have been used to implement 68 projects at tribal facilities that cost a total of \$2,889,372. Tribes developed a scientifically-based competitive project application and ranking process for awarding contracts to individual tribes to implement hatchery reform activities.

The remainder of the funds have been used to support the tribal hatchery science team within the Enhancement Services Division at the NWIFC, as well as the tribal representative to the Hatchery Scientific Review Group, based at the Nisqually Tribe. The NWIFC hatchery science team consists of a supervising senior geneticist, a second geneticist, a biometrician, and a salmon ecologist.



The geneticists provide technical support for commission and tribal staff on issues involving genetics and salmon recovery. These issues include: appropriate uses of hatcheries in salmon recovery programs; planning, implementation and monitoring of hatchery research; risk assessment; and mixed stock fishery analysis using genetic data.

The salmon ecologist provides technical support for tribal programs on issues involving ecology and artificial production. These issues include: the role of fish behavior, interspecies interactions and freshwater and nearshore habitats in designing hatchery programs; planning, implementation and monitoring of research for hatchery activities; and risk assessment of hatchery programs.

The biometrician provides technical support for commission and tribal enhancement staff on experimental design and monitoring, statistical analysis and database maintenance.

## Accomplishments

Funding for Hatchery Reform in western Washington has led to a series of important accomplishments:

- ◆ The state and tribal co-managers have created the Hatchery Reform Coordinating Committee, a top-level policy group committed to working with independent scientists to identify the goals of Hatchery Reform and encourage their implementation.
- ◆ The Hatchery Scientific Review Group (HSRG) – a diverse and accomplished scientific panel established to develop the scientific framework to guide Hatchery Reform programs – has completed reviews of hatchery programs throughout western Washington.

### FY 2004 Hatchery Reform Appropriation

	WDFW	NMFS	NWIFC	USFWS	HSRG	LLTK	IAC	Total
Independent Scientific Review, Oversight and Planning					\$321,068			\$321,068
Agency Scientists and Assistants to Support Scientific Decision Process	\$1,101,057	\$42,950	\$281,237	\$85,900				\$410,087
Hatchery Practices, Structural Improvements			\$430,608	\$52,184				\$482,792
Research Grants					\$335,010			\$335,010
Facilitation and Communication						\$292,060		\$292,060
Budget Administration				\$25,000			\$32,926	\$57,926
<b>Total</b>	<b>\$1,101,057</b>	<b>\$42,950</b>	<b>\$711,845</b>	<b>\$163,084</b>	<b>\$656,078</b>	<b>\$292,060</b>	<b>\$32,926</b>	<b>\$3,000,000</b>

WDFW = Washington Dept. of Fish and Wildlife; NMFS = National Marine Fisheries Service;  
 NWIFC = Northwest Indian Fisheries Commission; USFWS = U.S. Fish and Wildlife Service;  
 HSRG = Hatchery Scientific Review Group; LLTK = Long Live the Kings; IAC = Interagency Committee for Outdoor Recreation

- ◆ Hatchery and Genetic Management Plans – the foundation of Hatchery Reform — have been completed. The plans contain descriptions of hatchery programs developed under regional planning efforts by the co-managers.
- ◆ Initial research has been funded – and is being carried out – to address the knowledge gaps about how hatcheries affect wild stocks. The HSRG has funded three rounds of research – totaling over \$1.5 million – on hatchery impacts and the use of hatcheries as tools of conservation. The HSRG sponsors annual research reviews in January to provide an opportunity for funded researchers to present the results of their work, allowing the new scientific information to aid the Hatchery Reform effort.
- ◆ Congressional funding to support tribal and state efforts to implement Hatchery Reform has been used to establish science teams that have undertaken a variety of activities including: conducting risk analysis on hatchery programs to meet ESA requirements; conducting research on hatchery effects and practices that complement the HSRG research grant program; assisting in implementing early reforms; gathering data for HSRG regional briefing documents; interpreting technical literature for hatchery managers; and providing technical support to the HSRG, the Hatchery Reform Coordinating Committee and regional staff participating in the hatchery program review process.
- ◆ The NWIFC staff biometrician assigned to Hatchery Reform worked with the tribes to develop statistical techniques for assessing the contribution of hatchery and wild fish to natural spawning aggregations; analyzed data on returns of hatchery fish, which is useful for evaluating the success of hatchery programs; and provided statistical consulting on tribal research and monitoring projects. The biometrician has assisted the HSRG in developing monitoring and evaluation criteria that can be used to determine the success of a hatchery program in meeting its goals and objectives. These criteria will also consider what data is needed for future research on hatcheries. The biometrician also has begun work with participants in regions already reviewed by the HSRG to aid them in tailoring monitoring and evaluation criteria to the features and circumstances of their region.
- ◆ The NWIFC salmon ecologist helped tribes develop and implement estuary research for investigating co-occurrence between hatchery and wild fish; continued to build upon a literature database on ecological interactions; and is developing a database of tribal hatchery reform recommendations and completed hatchery reform projects. The ecologist also worked with individual tribes to assist in development and implementation of ecological studies funded through the Hatchery Reform effort.
- ◆ New hatchery management software and a database have been developed and distributed to greatly improve the amount of information available to hatchery managers and policy makers. The software, called HatPro, improves monitoring, management and planning capabilities for hatchery managers, as well as allowing on-site electronic transfer of key hatchery data directly to state, tribal and federal agencies. Four group training workshops and numerous on-site training sessions have been provided to tribal hatchery managers.

#### FY 2004 tribal science team work activities:

- ◆ The NWIFC staff geneticists assigned to Hatchery Reform worked with tribes on genetic issues associated with the development of hatchery management and reform plans and helped prepare tribes for reviews with the HSRG; helped collect and analyze morphological and DNA data on threatened Nooksack River and Stillaguamish River wild chinook salmon; developed tribal research to evaluate genetic changes in hatchery and wild populations; reviewed HSRG guidelines and developed models for the HSRG to use with the co-managers in deciding when to start hatchery programs and how to integrate hatchery and wild production consistent with sustainable natural production; coordinated information exchange between the co-managers, HSRG, other independent scientific review groups such as the Recovery Science Review Panel, federal regulatory agencies, and the Shared Strategy (regional salmon recovery planning entity); secured a grant and began developing a quantitative risk assessment model for hatcheries.

## FY 04 Tribal Hatchery Reform Projects

Following is a list of tribal Hatchery Reform projects funded in FY 2004.

### Type I Projects To Improve, Evaluate Or Monitor Hatchery Practices

- ◆ Tulalip Tribes: Contribution of Tulalip Hatchery Chinook to Terminal Fisheries and Local Naturally Spawning Populations Using Otoliths (ear bones).
- ◆ Stillaguamish Tribe: Accurate Monitoring of North Fork Stillaguamish Chinook Out-migration Numbers.
- ◆ Makah Tribe: Upgrade Incubation Equipment at Stony Creek Remote Rearing Site.
- ◆ Makah Tribe: Umbrella Creek Sockeye Broodstock Capture and Adult Escapement Monitoring.
- ◆ Nisqually Tribe: Weir Feasibility Study for Adult Trap on the Main Stem Nisqually River.
- ◆ Lower Elwha Klallam Tribe: Lower Elwha Enriched Rearing Environment Study.
- ◆ Stillaguamish Tribe: Stillaguamish Chinook Smolt Production Estimation – Hatchery and Wild Contributions.
- ◆ Makah Tribe: Lake Ozette Sockeye Salmon Out-migration Monitoring Project.
- ◆ Tulalip Tribes: Survival Rate Comparison of Summer and Fall Chinook Broodstock at Tulalip Hatchery.
- ◆ Stillaguamish Tribe: Stillaguamish River Fish Wheel Pilot Project.
- ◆ Squaxin Island Tribe: Acoustic Tagging and Tracking of Minter Creek Hatchery and Peale Passage Net Pen Coho.
- ◆ Lummi Nation: Skookum Hatchery Coho Release and Transfer Improvements (Fish Counter and Pumps).

### Type II Projects To Retrofit, Modify Or Build Facilities

- ◆ Tulalip Tribes: Purchase and Install Bird Netting and Fencing at Upper Tulalip Creek Pond.
- ◆ Upper Skagit Tribe: Upper Skagit Hatchery Water Supply Modification/Retrofit.
- ◆ Makah: Hoko Falls Hatchery Adult Ladder Feasibility Study.
- ◆ Stillaguamish Tribe: Electrical Panel Relocation.
- ◆ Nisqually Tribe: Adult Pond Retrofit Phase III.

Following are more detailed examples of recently completed tribal projects conducted with the aid of Hatchery Reform funding:

## Makah Tribe *New Incubators, Tank At Stony Creek Facility*



Improved rearing equipment is helping efforts to restore Lake Ozette sockeye.

the stock by taking eggs from wild sockeye and hatchery rearing the fish to boost adult returns. Supplemented sockeye return to tributaries of the lake; wild sockeye spawn along the lake's beaches.

Monitoring all activities related to sockeye restoration is critical. That's why the tribe needed to escape-proof its Stony Creek hatchery facility, one of several small field facilities on tributaries of Lake Ozette where young sockeye are reared.

Sockeye eggs are incubated in trays suspended in water within a large plastic tank. When the fish emerge from the eggs, they are half the length of a fingernail. But, because of their small size, heavy rains could flush the fish out into Stony Creek.

In most hatchery operations, early escapes aren't a problem. But the Makah Tribe needed to replace the plastic tanks and egg trays, and stabilize the flow of water to have absolute control of when the fish were let go. That's because they are marking fish and releasing them at different times to evaluate what release strategy brings back the most fish.

As part of the study, three groups of fish have their ear bones marked by fluctuating the water temperature while the fish are in the egg stage, creating marks on the ear bones, or otoliths, similar to tree rings. The mark can be read under a microscope when fish return as adults to spawn. Each group is marked with a different otolith mark and each is released at a different time.

"We wouldn't be surprised to find out that the fish released earlier survive better," said Joe Hinton, hatchery manager for the Makah Tribe. "Even though they are smaller, water levels get pretty low later in the year when we release the larger fish, which might adversely affect their survival."

The Makah Tribe is conducting a multi-faceted program to preserve and enhance Lake Ozette sockeye, a species listed as "threatened" under the federal Endangered Species Act.

Included in the tribe's efforts is supplementing



## Nisqually Tribe

### *Kalama Creek Hatchery Improvements*

A series of changes at the Nisqually Tribe's Kalama Creek Hatchery is making the facility more efficient while protecting wild salmon stocks.

"Kalama Creek Hatchery is a good example how a good facility leads to more chinook for harvest and less impact on wild stocks," said Bill St. Jean, chief enhancement biologist for the Nisqually Tribe.

This year the tribe retrofitted a newly installed fish ladder with an 18-inch diameter drain pipe that allows more fish to enter the hatchery. "The fish ladder was an incredible improvement over our old system, where salmon had to swim through a pipe to get into the hatchery," said St. Jean. "By adding a drain pipe, we can now control the flow of water through the fish ladder."

With more chinook returning to the hatchery, the potential that any will stray onto the wild salmon spawning grounds in the Kalama Creek system is reduced. "This means that there is less impact on natural chinook stocks," said St. Jean. "We want to produce more chinook for harvest, not hurt wild salmon populations."

In addition to a new fish ladder installed last year, the tribe is also planning to build a fencing system in the hatchery's adult holding pond. The fencing system, which will look like two parallel picket fences running lengthwise down the middle of the pond, makes the spawning process easier. Two fences will create a narrow hallway in the middle of the pond where salmon ready for spawning can be easily sorted by ripeness.

"This is a simple system that we've been using at the tribe's other hatchery for more than a decade," said St. Jean. "By keeping salmon confined in a fixed area, rather than in a net, for example, they are much easier to handle and there is much less of chance that we'll hurt them. As handling of each fish is reduced, so is stress.

"These physical changes at the Kalama Creek Hatchery are a very straightforward way to help both hatchery and wild fish," said St. Jean.



Improvements at the Kalama Creek Hatchery are aiding efficiency and protecting wild salmon.

## Lower Elwha Klallam Tribe

### *Natural Rearing And Enhancement System Rearing Pond*

The Lower Elwha Klallam Tribe is taking a more natural approach toward rearing salmon at its fish hatchery.

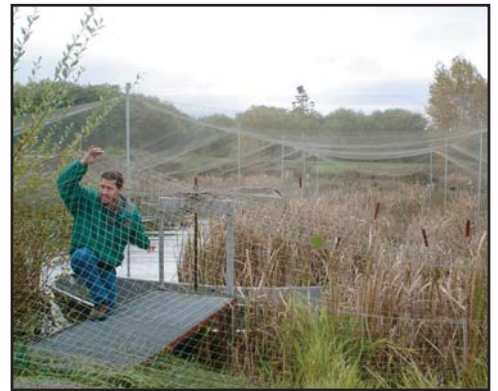
Instead of raising juvenile coho salmon in a traditional cement pond, the tribe has created a rearing pond that mimics the natural environment used by wild salmon. By adding gravel, tree root wads and native vegetation to the rearing pond, the tribe has produced a natural habitat that will teach salmon how to better survive in the wild.

"We are trying to provide a more natural and healthy environment for these fish," said Larry Ward, hatchery manager for the Lower Elwha Klallam Tribe. "Salmon reared in the natural pond will learn to take care of themselves and will have a better chance of survival after they are released."

Salmon reared in the natural ponds tend to behave differently than salmon raised in traditional ponds. Salmon are attracted to shade, and in the conventional ponds the only shade often comes from the shadow of a worker who is feeding the fish. As a result, those fish associate a shadow with food. After being released, juvenile fish reared in traditional ponds can become easy prey because they might be attracted to the shadow of a predator searching for salmon along a stream. Salmon in the natural pond, however, use the shade provided by vegetation for protection and cover, much like wild fish do in nature.

Salmon in the natural ponds also are darker in color than the fish reared in the traditional ponds, where salmon tend to be brown. Because salmon have the ability to change color to resemble their surrounding environment, shaded ponds produce blacker fish. Predators will have a tougher time finding the dark salmon, increasing the survival rate of juvenile fish.

So far, the pond has shown signs of success. Coho reared in the natural pond have returned to the hatchery at twice the rate as salmon raised in the asphalt ponds, said Ward. About 100,000 of the 800,000 coho raised annually by the tribe, are reared in the natural pond. The other 700,000 coho are raised in conventional asphalt ponds.



Rearing hatchery salmon in a more natural environment increases survival rates.

“Our goal is the recovery of weak salmon stocks,” Ward said. “We have a better chance of achieving that goal if we produce hatchery fish that are better suited for life in the wild.”

## Lummi Nation

### *New Pump Powers Enhancement Efforts*



Merle Jefferson, Lummi natural resources director, shows a new pump station that is aiding enhancement efforts at the tribe's Lummi Bay Hatchery.

For 30 years, the Lummi Nation's Lummi Bay Hatchery has needed a consistent source of fresh water. Finally, thanks to decades of hard work and some new funding, that source is here.

In March, the Lummi Nation completed construction of a new pump station on the Nooksack River. The new three-pump station will replace the aging

and ill-placed facility on nearby Kwina Creek and provide the Lummi Bay Hatchery with the water it needs.

“Our fisheries enhancement operation is crucially important to us. It provides fish for people to catch and helps take the pressure off wild salmon runs, promoting recovery,” said Merle Jefferson, director of natural resources at Lummi Nation. “The new pump will help our enhancement efforts work as efficiently as possible.”

Besides the risk of pump failure from age, its location on Kwina Creek was a problem. Especially in winter and early spring, not enough water existed in the creek to sufficiently feed the pump.

Also, when silt flows downstream toward the station, it diminishes the amount of useful fresh water in Kwina Creek and clogs the pump. Several times each year, emergency crews from Lummi Nation were forced to rush out to the old pump when water levels became dangerously low.

“We were just praying that the pumps would hold out until this spring, so we'd have all our fish spawned,” said Linda Delgado, enhancement manager for Lummi Nation. The Lummi Bay facility produces about 1 million coho salmon each year.

Access to water will be improved by moving the pump station from Kwina Creek, a small tributary, to the main stem of the Nooksack River.

“We won't be pumping more water, but we will have water more readily and consistently available, which is important,” said Delgado.

Additionally, the tribe installed some upgrades to the new facility, including a fish-friendly screen designed to prevent salmon from wandering too close to the pump mechanism.

## Future Funding Needs

Unlike the State of Washington, which provides legislative appropriations to the Washington Department of Fish and Wildlife to implement Hatchery Reform, federal appropriations are the only avenue available to the tribes for hatchery management and reform funding. Hatchery Reform is an ongoing process, and consistent federal funding is critical to enable tribes to conduct hatchery-specific studies that provide information leading to progressive modifications of hatchery programs and facilities.

Tribes are continually re-evaluating their programs to address the most pressing salmon related issues. Significant portions of tribal programs and resources have been refocused to address salmon recovery issues such as ESA and Hatchery Reform.

The member tribes of the NWIFC continue to contribute to the technical expertise regarding changes needed in hatchery programs. They have jointly completed resource management plans for Puget Sound hatcheries. They will also continue to contribute technical expertise in genetics and hatchery management and, to the degree feasible, utilize extremely limited hatchery maintenance funds provided through the Bureau of Indian Affairs to assist in implementation of Hatchery Reform.

Congress reduced overall funding for Hatchery Reform by \$500,000 from \$3.5 million to \$3 million in FY 04. A further reduction of \$500,000 is anticipated for FY 05. That funding has not yet been allocated to participants, but will likely result in reduced tribal implementation.

For FY 06, the tribes are requesting that \$400,000 be added to our existing BIA 638 contract to support existing scientific staff positions necessary for ongoing Hatchery Reform implementation. The tribes also are requesting that Congress place \$5 million per year, for 10 years, in the BIA Hatchery Rehabilitation and Cyclical Maintenance line item to fund implementation of Hatchery Reform projects at tribal facilities.





# Coordinated Tribal Water Quality Program

## Introduction

The Coordinated Tribal Water Quality Program (CTWQP) was developed by the 27 federally recognized tribes in the State of Washington in 1990. For the past 14 years tribes have worked with the U.S. Environmental Protection Agency (EPA) to implement the CTWQP. EPA funds are enabling the tribes to conduct water quality programs critical to the management of their treaty-protected resources, and to provide for the health of their members and the environment.

Funding for this program for the past five years has come from Senate appropriations aimed at Northwest tribes to supplement the EPA Indian General Assistance Program (IGAP). The FY 04 appropriation was \$374,900 for the 27 tribes in Washington. This was a significant reduction in funding for this important program. This year, tribes are requesting to rebuild the program to its FY 03 level of \$750,000. This provides pass-through funding for the 27 tribes for each of their programs, and \$240,000 for statewide coordination.

The past year's funding, while less in amount than in years past, provided important overall water quality program support to tribes. These CTWQP monies have evolved into providing much needed direct implementation monies that, coupled with IGAP funding, create a net result larger than the sum of their parts. Profiles of individual tribal programs below illustrate the utility and enabling nature of these monies.

The CTWQP is designed to further the ability of tribes to organize and begin addressing the water quality concerns that are threatening their reservations and treaty-protected resources. Water pollution in Washington threatens the health of tribal members and their treaty resources without respect to political boundaries. Tribal jurisdictions inter-

lock with many other jurisdictions, including some of the most densely populated and industrial areas in the state.

Three commonalities guide program design and implementation:

- ◆ All tribes are confronted by serious water quality issues;
- ◆ All tribes require necessary infrastructure to adequately address these issues; and
- ◆ A watershed/ecosystem approach is the best approach to solving these issues because of their multi-jurisdictional nature.

The tribes in Washington developed and adopted the CTWQP as a watershed protection strategy to safeguard the resources on which they depend for their economic, spiritual and cultural survival. This strategy provides for the development of infrastructure, program implementation and statewide coordination.

At a time when EPA is working to improve responsiveness to Indian governments and Indian lands, the Coordinated Tribal Water Quality Program provides a national model. The program demonstrates how tribes and EPA can improve the structure of their relationships, thereby improving the success of ecosystem management approaches and EPA programs with Indian tribes. Additionally, this model program has produced transferable tools that can be shared with tribes throughout the nation. These tools include:

- ◆ Routine coordination and networking among tribes, state agencies and EPA;
- ◆ A coordinated tribal water quality database design and structure;
- ◆ A tribal water quality standards template;
- ◆ A Coordinated Tribal Water Quality Program design manual; and
- ◆ A cooperative state/tribal 303(d) strategy.



The tribes know that the battle against water pollution cannot be fought alone. To succeed, it will require cooperative, coordinated efforts with other governments. To make every funding dollar work to its fullest, the tribes are building partnerships with other governments to implement coordinated, cooperative programs that address water quality issues.

For more than two decades, the tribes in Washington have been successfully developing comprehensive, cooperative agreements with state and local governments and private interest groups to protect and manage natural resources essential to the survival of fish and shellfish. These processes, unique in the nation, have brought previously contending parties together in efforts to address difficult issues.

The tribes are committed to managing water quality on a watershed/ecosystem basis that transcends political boundaries. To that end the tribes have developed the CTWQP, which benefits not only the tribes, but all residents of the state.

The federally recognized tribes in Washington are confronted by serious water pollution issues, but lack the means to adequately address these issues. The main sources of pollution degrading tribal waters are:

- ◆ Urbanization;
- ◆ Agricultural practices;
- ◆ Logging and other silvicultural activities;
- ◆ Failing septic systems;
- ◆ Storm water runoff and sewer overflows;
- ◆ Municipal and industrial discharge;
- ◆ Industrial point source pollution;
- ◆ Municipal and industrial water diversions; and
- ◆ Mining.

Many of these pollution sources originate some distance from tribal reservations, yet still threaten tribal health and well being. These types of pollution threaten the survival of salmon, shellfish and other natural resources on which the tribes depend for their survival.

Nearly all tribes operate fish hatcheries and other facilities to supplement stocks of wild salmon. These facilities, which depend on clean water for their operation, produce an average of 40 million young salmon annually.

Participating tribes want the CTWQP coordinating mechanism and technical components to build on the existing efforts of individual tribes and other entities to improve water quality, restore salmon populations and protect shellfish. The CTWQP is neither intended to replace existing tribal programs nor compete with them for funding.

## The Program

For 14 years, 27 federally recognized Indian tribes in the State of Washington have been implementing the CTWQP. Much has been accomplished in that time. As previously described, the CTWQP has two components: individual tribal programs and coordination.

### Individual Tribal Programs

Each of the 27 tribes has professional staff to accomplish program activities. Work in FY 04 continues successful program implementation of this longstanding initiative.

Utilizing the CTWQP, tribes proceeded to develop and implement watershed management plans, monitor water quality trends, map problem areas, clean up shellfish beds, establish well head protection programs, and develop water quality standards.

As sovereign governments and partners in water quality management, the tribes also began participating in cooperative watershed-based, inter-governmental water quality protection activities.

### Coordination

The Northwest Indian Fisheries Commission, functioning as the coordination entity for the CTWQP, organizes and facilitates bi-monthly program meetings, provides a forum for program policy development, serves as an information clearinghouse, represents tribal interests on statewide policy and technical committees, arranges meetings of tribal, state and federal participants to address water quality issues, facilitates implementation of tribal water quality programs, and works to maintain program funding. The intent is to support tribal programs while maintaining a coordinated program focus, allowing tribes to focus on their local water quality concerns.

## Accomplishments

The continuing success of this tribal water quality protection strategy is encapsulated in the following list of program accomplishments. This is not intended to be a comprehensive list, but a representation of program achievements and the widespread environmental benefits that can be attributed to the program. The success of water quality protection and restoration in Washington requires the tribes to be full and consistent partners.

## Tribal Program Accomplishments

### Makah Tribe

#### *Water Quality Monitoring*

Marine waters are the lifeblood of the Makah Tribe. It is a tribal priority to maintain the health of the waters that provide much of the food they eat.

Monitoring is one way the tribe keeps tabs on what is happening in Makah

Bay, the Strait of Juan de Fuca and the Pacific Ocean. For nearly five years, Bill Parkin, a Makah tribal member, has been measuring the health of Makah Bay and tracking the presence of the microscopic plants that help indicate when shellfish become toxic.

Parkin, who is also a Makah Marina harbormaster and oil spill response coordinator, was trained at the National Oceanic and Atmospheric Administration's lab in Seattle to gather and process seawater samples. With a microscope, Parkin counts the types of tiny plants that are thought to create domoic acid in shellfish. Domoic acid is not harmful to the shellfish, but can sicken or kill people who eat the shellfish.

The Makah Tribe is part of the Olympic Region Harmful Algal Bloom partnership organized to investigate the origins of blooms of toxic algae and monitor when and where blooms occur. This summer, Parkin recorded the highest counts of pseudo-nitzschia (the organism believed to cause domoic acid) that he's observed in the four years of the program.

Ultimately, Parkin's work – funded in part through the Coordinated Tribal Water Quality Program – helps Makah tribal members know when it's safe to consume shellfish harvested from area beaches.

On a larger scale, the tribe's work is contributing to a national effort to build a better understanding of how harmful algal blooms form. Additionally, the tribe is helping to test an early warning indicator that would make it unnecessary to test samples of shellfish, an expensive and time-consuming process.



Bill Parkin, Makah, prepares to test seawater for the presence of biotoxins.

### Jamestown S'Klallam Tribe

#### *Biofiltration Project*

A newly constructed tribal conference center and a nearly complete tribal social and health service's building are now part of the landscape in Blyn – the home of the Jamestown S'Klallam Tribe.

Having those state-of-the-art facilities to provide tribal members the

services they need is vital to the tribe, and just as important is ensuring that the development of those structures doesn't harm another essential resource: the environment.



Vegetation will help filter storm water runoff from a new facility at the Jamestown S'Klallam Tribe.

Development increases the amount of storm water runoff, which can carry pollutants and other nutrients into waterways. To protect the nearby estuary, the tribe is planning to incorporate a natural filtration system as part of their development plan, with the aid of Coordinated Tribal Water Quality Program funding.

"We are expanding our tribal government facilities and looking at other economic development opportunities, and at the same time we are restoring nearby Jimmycomelately Creek and the Sequim Bay estuary," said Lyn Muench, environmental planning manager for the Jamestown S'Klallam Tribe. "So, we are exploring ways to carefully manage storm water and lessen its impact on the estuary and streams by employing low impact development techniques as part of our overall development plan."

One technique being considered by the tribe is constructing a "rain garden" that will act as a filter for the runoff before the water reaches the bay. As the runoff flows through the garden, the vegetation will filter out a majority of nutrients and pollutants before the water reaches the bay.

"The tribe understands the importance of economic development, but we don't want that development to harm our natural resources," Muench said. "By including options, such as biofiltration systems or pervious surfaces, we can limit the impact of development and protect this estuary that we have worked so hard to restore."

## Squaxin Island Tribe

### *Stream Gauge Provides Real-Time Data*



John Jern, U.S. Geological Survey, shows a new stream gauge that the Squaxin Island Tribe will use to track effects of stream flow on Goldsborough Creek

A new stream gauge that provides real-time data is helping the Squaxin Island Tribe better understand and react to changes on Goldsborough Creek, the largest creek in the tribe's treaty fishing area.

"Seeing how much water is flowing through a stream minute by minute answers many of the questions we deal

with," said John Konovsky, water program manager for the Squaxin Tribe. Goldsborough Creek runs through downtown Shelton, the largest city in the county. The creek was recently the site of a dam removal project that opened up more than 25 miles of salmon habitat.

Tribal staff rushed to assess the affects of a major storm last winter that hit Goldsborough Creek and other surrounding streams especially hard. "Floods can quickly damage or destroy salmon habitat. We wanted to see how the creeks reacted to the flooding," said Konovsky. "If there had been a real-time gauge available then, we would have been able to see the floods coming and reacted quicker."

Information sharing is easier now because stream flow data for Goldsborough is online. "Having this information available on the Internet lets anyone have access to the data," said Konovsky. "Property owners along the creek, or anyone interested in the conditions on the creek, are able to see for themselves."

## Swinomish, Sauk-Suiattle Tribes

### *Ambitious Recovery Project Launched*



The Swinomish Tribe and a local farmer are working together to show that farms and fish can co-exist.

A salmon recovery project being conducted by the Swinomish Tribe and the Skagit River System Cooperative (SRSC) isn't just critical for fish: it's a positive step, across daunting barriers, toward cooperative environmental work in the Skagit basin.

SRSC, the natural resources consortium of the Swinomish and Sauk-Suiattle tribes, is collaborating with local farmer Gail Thulen on a comprehensive habitat restoration plan for 300 acres of Swinomish tribal land that Thulen leases to grow wheat, peas and potatoes.

"This project is crucially important because a huge amount of habitat that isn't currently accessible to *any* salmon species will be made accessible to *all* salmon species," said Lorraine Loomis, fisheries manager with the Swinomish Tribe. "But it also shows that the tribes' salmon recovery agenda applies to our own land, too – and that we want to work cooperatively. We'll do whatever we have to do to save these fish.

"Farms and fish can co-exist. We just have to work together and find creative solutions," said Loomis.

Known as the Smokehouse floodplain, the site on the Swinomish Tribe's reservation near La Conner extends north up to the Highway 20 bridge. In addition to essential habitat improvements throughout the site's 300 acres, SRSC work will open access to 5 miles of the Swinomish channel network currently unavailable to salmon.

Immediate benefits are expected for sockeye, pink and chum salmon, which should use the area in high numbers; coho and threatened chinook will also get a boost. Of particular importance will be SRSC's restoration of marsh habitat, which is in short supply and critical to salmon production in the Skagit basin.

Highlights of the restoration plan include: Replacement of failing, fish-blocking tide gates; re-planting 50 streamside acres with native vegetation; and improving connections between the floodplain's creeks, sloughs and channels – which will enhance the site's natural habitat functions.

While performing the extensive restoration work necessary, the tribes will take great care to minimize any risk to Thulen's crops. After dredging sediment from the sloughs to improve habitat connectivity, tribal crews will use that material to shape berms designed to protect the adjacent agricultural land from salt water intrusion. Finally, for each acre of land impacted by the project, either by decreased productivity or exclusion from tilling, the tribe will financially compensate Thulen.

"For the past 150 years, tribal people have watched fish runs being depleted by habitat destruction. We know what it's like to watch your livelihood, your food source, disappear," said Loomis.

"We hope this serves as a model for future environmental restoration," said Loomis. "If we work together, we can find projects that are acceptable to everyone – and that's the best way to save the salmon."



## Statewide Program Accomplishments

“Sharing the Model,” an initiative designed to communicate and share 15 years of experience and tools from tribes in the states of Washington and Alaska has been formulated. As part of this water quality management model, the tribes, Washington Department of Ecology (DOE) and the federal U.S. Environmental Protection Agency (EPA) are continuing to work to communicate issues and solutions to improve the development and implementation of statewide water quality standards.

Work has also been accomplished to create an inter-governmental approach to coordinate monitoring efforts in safeguarding the water quality throughout the state. Through this technical assistance project, DOE is planning to share resources and expertise with tribal governments to more effectively protect the ecological integrity of our aquatic systems.

An annual conference to foster communication between tribes and EPA, and to highlight issues and work accomplished, has been initiated and has enjoyed widespread participation.

Additionally, the Coordinated Tribal Water Quality Program is beginning to implement a Coordinated Tribal Water Quality Database to more efficiently organize, utilize and share data.

## A Model EPA/Tribal Partnership

As the EPA has begun to address its responsibility to tribal lands and resources, the CTWQP is demonstrating how the tribes and EPA can work together. The program also is fulfilling EPA goals for working with Indian governments and lands. Those goals include:

- ◆ Development of tribal management capacity;
- ◆ Delegation of environmental protection programs to tribes; and
- ◆ Encouragement of cooperation between tribal, state and local governments to resolve environmental problems of mutual concern.

The Coordinated Tribal Water Quality Program is producing tribal water quality protection tools with nationwide applicability. To date, four distinct tools have been developed:

- ◆ A program design structure that works to coordinate the activities of 27 individual tribal government programs while supporting both their autonomy and sovereignty;
- ◆ The Tribal Water Quality Standards Template, a document created to assist tribes and tribal staff who have selected to incorporate the development of water quality standards into their water quality protection programs;
- ◆ The 303(d) Cooperative Implementation Plan. This plan outlines an inter-governmental working relationship between DOE and individual tribal governments in completing the 303(d) listing process both on and off-reservation throughout the state’s watersheds; and
- ◆ A Coordinated Tribal Water Quality Database design.

In FY 05 tribes participating in the CTWQP will begin work to share the model and take these and other tools to tribes throughout the region.

## Future Funding Needs

The continued success and future existence of the Coordinated Tribal Water Quality Program lies solely in the future of its funding. Tribes have demonstrated a commitment to participating in this coordinated forum, and lengthy descriptions of successes and benefits to this approach from tribal, federal and state perspectives have been developed and shared. The funding history of this program is complex in that it predates existing EPA tribal funding mechanisms and has transitioned repeatedly until it was nearly eclipsed by the EPA Indian General Assistance Program (IGAP). Senator Patty Murray, recognizing the unique and vital nature of this important water quality initiative, re-identified specific funding to maintain its identity. The challenge for future funding is to rebuild the full scope of the program separate from the mounting and competing needs for limited EPA IGAP monies. The base funding request of \$3.1 million includes \$110,000 for each of the 27 participating tribes and \$200,000 for centralized communication and coordination. For FY 06, the tribes are requesting \$750,000 to rebuild this important and nationally recognized tribal water quality initiative.

## Conclusion

Through the Coordinated Tribal Water Quality Program, the tribes have the same goal for Washington waters as the federal Clean Water Act: to restore and maintain the chemical, physical and biological integrity of the nation’s waters.



# Pacific Coastal Salmon Recovery Program

## Introduction

Congress created the Pacific Coastal Salmon Recovery Program (PCSRP) in 2000 to provide critically needed assistance to tribes as participants in growing salmon recovery efforts in the region. Recognizing the need for flexibility among tribes to respond to salmon recovery priorities in their watersheds, Congress earmarked the funds for salmon habitat restoration, salmon stock enhancement, salmon research, and implementation of the 1999 Pacific Salmon Treaty Agreement and related agreements. This report summarizes the important work these much-needed funds are supporting to restore healthy and wild salmon runs to western Washington.

## Policy Development

Wild salmon have always been vital to sustaining tribal cultures and economies, a fact that is no less true today than it was in the 1850s when the tribes negotiated treaties with the United States. Because of the central role salmon play in the health of their communities, the tribes secured the continued right to harvest salmon in exchange for vast lands and resources now enjoyed by millions of non-Indians. While unequivocally affirmed by the U.S. Supreme Court, the United States' treaty promises ring increasingly hollow as wild salmon continue to disappear from the Pacific Northwest.

Past over-harvesting and over-dependence on hatcheries have contributed to the disappearance of wild salmon. Tribes have worked diligently over the past three decades to improve and reform harvest and hatchery management. These efforts have been successful in slowing the loss of wild salmon, but stocks have not – and cannot – rebound with these actions alone. Experts have concluded that loss and degradation of freshwater and estuarine spawning and rearing habitat in the tribes' ceded territory have been, and continue to be, the major causes of decline.

Habitat degradation began over a century ago, but over the past 30 years a huge population influx around the Puget Sound – with its accompanying development, pollution, and increased demand for water – is decimat-

ing much of what remains of the region's once highly productive salmon habitat. Growth in the region is expected to continue, creating the urgent need to take meaningful steps to protect and restore ecosystems that support salmon and other life.

In 1999, Puget Sound chinook, Hood Canal/Strait of Juan de Fuca summer chum and Lake Ozette sockeye salmon were listed as “threatened” under the Endangered Species Act (ESA). Today, salmon restoration efforts in western Washington – indeed, all salmon management here – must be conducted with the ESA as a backdrop.

The ESA is the filter through which must pass all salmon recovery plans in western Washington. The ESA isn't the starting point for salmon restoration – the state and tribes have been working on restoration efforts for decades. Nor is ESA the end point – tribal salmon restoration efforts won't conclude until there are healthy wild fish populations to support harvest by both Indian and non-Indian fishermen.

Western Washington tribes are leaders in the salmon recovery effort. The tribes possess the legal authority, technical and policy expertise, and effective programs to address impacts on wild salmon from harvest and hatcheries. The tribes are strategically located in each of the major watersheds in western Washington. No other group of people knows salmon like the tribes. No other group of people depends on salmon for their cultural, spiritual and economic survival.

Over the past three decades, in response to dwindling populations and a commitment to sustainable fisheries, the tribes and State of Washington have worked together as co-managers of the resource, modifying and reducing harvests to protect individual populations of salmon. Harvest levels have been cut dramatically – by as much as 80-90 percent in some cases – at great cost to the spiritual, cultural and economic well-being of the tribes. Harvest reductions alone, however, cannot make up for the loss of wild salmon production caused by lost and degraded spawning and rearing habitat.

Through hatchery reform efforts now under way, the treaty tribes and State of Washington are drawing upon state-of-the-art science to minimize the impacts of artificial propagation on wild salmon. For each of their chinook hatcheries, tribes have completed Hatchery Genetic Management Plans. These plans, along with those completed by the Washington Department of Fish and Wildlife for its chinook hatcheries, form the basis of a conservation plan that NMFS will consider for Section 4(d) coverage under the Endangered Species Act. Section 4(d) prohibits taking a listed salmon or steelhead, except in cases where the take is associated with an approved program.

Tribal governments have made strides to protect salmon habitat, both on their reservations through land-use and water resource authorities and off-reservation by collaborating with non-Indian neighbors to protect and restore watersheds that support salmon.

At the forefront of the struggle for salmon recovery in western Washington is the Shared Strategy. This four-year-old effort by tribal, federal, state and local governments and private sector leaders is aimed at creating healthy ecosystems to produce and support wild salmon at a level that will once again sustain commercial, ceremonial and subsistence harvest.

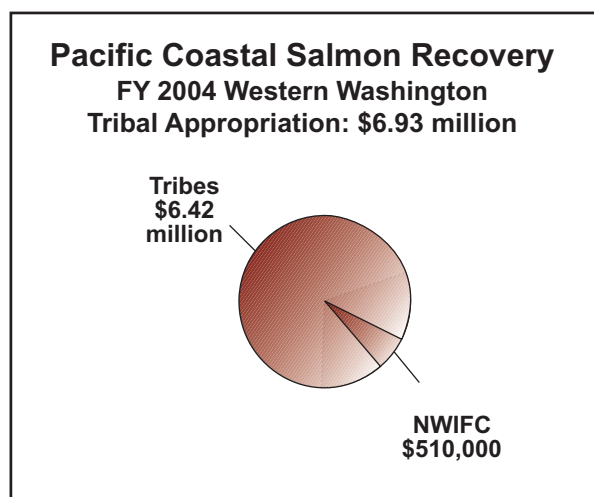
The Shared Strategy is not a top-down approach to wild salmon recovery, but rather a cooperative effort that links ongoing wild salmon recovery initiatives at the tribal, state, federal and local levels to create a plan that is viable and cost-effective. It establishes, organizes and manages these links; identifies necessary long- and short-term actions and coordinates funding needs; and proposes laws or policies needed to support wild salmon recovery. Much has been accomplished. The Shared Strategy has an ambitious timeline and is on track to deliver a draft recovery plan by June 2005. Key to the Shared Strategy's potential for success is the endorsement and participation in the process by the National Marine Fisheries Service (NMFS), the federal agency responsible for implementing the ESA and for overseeing recovery efforts for listed species.

Despite these efforts, however, the tribes' salmon recovery strategies continue to be hamstrung by insufficient resources. With listings of the tribes' treaty-protected salmon under the Endangered Species Act, the region's recovery activities threaten to overwhelm tribal resources. The tribes' meaningful participation in these complex and resource-intensive efforts to protect and restore treaty-protected salmon resources is critical to their success.

## Funding Distribution

In FY 2004, western Washington treaty Indian tribes received \$6.93 million in PCSRP funding for their continued participation in salmon recovery efforts. Each of the 20 tribes received \$321,189, with \$506,216 earmarked by the tribes for coordinating efforts by the NWIFC. As of this writing, Congress had not yet appropriated funding for FY 2005. The tribes are seeking at least FY 02 funding of \$9 million for FY 06.

Working closely with NMFS, the tribes have established efficient application and reporting requirements through the NWIFC to ensure accountability and the achievement of congressional and tribal salmon recovery goals.



## Implementation

Consistent with congressional intent, salmon recovery funding agreements allow the tribes flexibility in identifying for themselves salmon recovery priorities for tribal watersheds, governments and communities. At the same time, the tribes' efforts are connected through the NWIFC by overall strategies and efforts to most efficiently and effectively advance western Washington salmon recovery efforts. The NWIFC has re-directed resources and is using its base capabilities in a manner that advances these initiatives. Tribal proposals are reviewed and monitored by NWIFC technical and policy staff to ensure each provides sustainable and measurable benefits for salmon and their habitats. In addition, local and regional recovery efforts are analyzed and tracked to support the tribes' participation in shaping the direction of salmon recovery. It is on these two levels – the local level where watershed protections and improvements are being established to restore



## FY 2004 Allocation Of Pacific Coastal Salmon Recovery Program Funds

States	Washington \$25.99 million	Oregon \$12.99 million	Alaska \$20.65 million	California \$12.99 million	Idaho \$4.95 million
<b>Sub-Total:</b>	<b>\$77.57 million</b>				
Tribes	Columbia River \$3.06 million	<b>U.S. v. Washington Case Area \$6.93 million</b>		Other Pacific Coastal Tribes \$1.48 million	
<b>Sub Total:</b>	<b>\$11.47 million</b>				
<b>Total:</b>	<b>\$89.04 million</b>				

salmon runs and salmon habitat, and the regional level where state, federal and tribal leaders are collaborating to define goals and develop regional strategies – where salmon recovery is playing out in western Washington.

## Accomplishments

Because each tribe has slightly different staffing patterns, due in part to differential funding, historic fishing practices and geography, each tribe is utilizing the funding in ways unique to its needs. Some tribes are using the monies to supplement ongoing salmon recovery efforts, while others are undertaking new projects to protect, preserve and enhance the salmon resource.

Following are several examples of some tribal salmon recovery projects being conducted with FY 2004 Pacific Coastal Salmon Recovery Program funds. Most tribal salmon recovery efforts are conducted in cooperation with state, local, federal or private sector entities to more effectively utilize limited tribal resources. All are part of comprehensive programs being conducted by the tribes to achieve wild salmon recovery.

### Sauk-Suiattle And Swinomish Tribes *Project Benefits Fish, Homeowners*



A tribal habitat improvement project is providing a better home for fish, and better access to the homes of nearby residents.

A tribal salmon recovery project on an important tributary of the Skagit River will re-establish road access for homeowners and improve habitat for thousands of fish. Coastal Salmon Recovery funding was

the spark that enabled this work to happen.

Historically, Bacon Creek's natural meanderings provided top-notch habitat for all species of salmon. Young fish grew successfully in the stream's eddies and riffles – until a road installed near Bacon Creek restricted its movement, fundamentally changing the creek's natural function.

For years, landowners along Bacon Creek suffered from floods. Fish saw their property values degraded, too, as the complex wild stream was straightened and its abundant side channels lost. Ultimately, a flood last year severely damaged the existing road – inconveniencing homeowners, but creating an opportunity to help fish.

For the salmon to come back, tribal ecology specialists say, so must its habitat. Moving the road that hems in Bacon Creek, the Skagit River System Cooperative (SRSC) reasoned, would repair almost 1 mile of degraded stream habitat. SRSC, the natural resources arm of the Swinomish and Sauk-Suiattle tribes, is on the verge of completing removal of the existing road and installing a more salmon-friendly one.

“Rearing habitat is something we’ve lost a lot of in the Skagit basin – 70 to 80 percent according to some estimates,” said Devin Smith, senior restoration ecologist with SRSC. “By restoring Bacon Creek’s natural function, we’ll get a significant amount of that rearing habitat back.”

The failing road will be replaced with one farther from the water and on a hill, permitting Bacon Creek to wander as it pleases. Besides creating side channels for fish, allowing Bacon Creek to spread naturally across the flood plain will improve habitat in the stream’s main stem.

Bacon Creek is extremely important for salmon, including Skagit River chinook, listed as “threatened” under the federal Endangered Species Act. Bacon Creek and Illabot Creek are the two most productive tributaries of the Skagit River. The Skagit River is home to the largest chinook run north of the Columbia.

## Hoh Tribe

### *Hoh River Channel Migration Study*

The Hoh Indian Tribe’s relationship with the 55-mile long, glacier-fed Hoh River goes back centuries. It is the thread of life from which the salmon comes. Salmon sustains the tribe. Both depend on a healthy Hoh River.



The Hoh River threatens the Hoh Indian Reservation on the Washington coast.

But over the past 50 years, extensive logging on 30 miles of the Hoh River valley has dumped tons of sediment into the river that accelerates rapid, destructive side-to-side movement by the river, especially during floods. This leads to elimination of many side channels that are important spawning areas for salmon.

To help restore some stability to the lower Hoh River, the tribe first needed to know the history of its movement over the floodplain. Tribal biologists also wanted to know what the habitat looked like 100 years ago before industrial logging began in earnest.

To answer these questions, a channel migration study of the Hoh River was conducted to help plan salmon restoration activities and assess the risk from the river to tribal facilities. Most of the lower part of the reservation lies within the 50-year floodplain; homes and tribal buildings on the reservation have been repeatedly flooded.

The study, funded in part through the Coastal Salmon Recovery Program, examined aerial photographs and historic maps dating back to 1897. The main river channel, side channels, logjams and vegetation types were recorded in a database. The study found that the lower Hoh has become straighter and wider over time, likely from the effects of the large amount of sediment going into the river from intensive logging. Landslides associated with logging were tracked with the aerial photos.

In studying the Hoh River’s flood trends of the past 100 years, geologist Susan Perkins also found that flooding has increased dramatically since 1970. Before that time, large floods occurred once or twice every 10 years. Since 1970, severe floods have occurred five or six times every 10 years.

“There are also far fewer large logjams today than there were in the past in the 30 miles below land in Olympic National Park,” said Perkins. Large logjams create pools, bends and eddies that fish need to survive and thrive and help control flooding. Logging has largely eliminated large trees in riverside lands that the river would incorporate into large, stable jams of the past.

“This study is a great stepping-stone to our next project, which is planting trees in those streamside areas,” said Rod Thysell, natural resources director for the Hoh Tribe. The tribe is now working with private landowners to plant streamside areas beginning in 2005. “The study shows us the places to plant that will have the most longevity based on where the river’s next meanders are likely to go,” said Thysell. “You want the river to take trees for recruitment into logjams, but not when they’re too small to be useful.

“This channel migration study goes a long way in mapping out how the habitat has been diminished, and gives us the information we need to protect the riparian zones of the Hoh River that are so critical to salmon production in the Hoh,” said Thysell.

Finally, the study has supported the idea of relocating parts of the Hoh reservation. The river's trends over the past 100 years show that the main channel will likely migrate through the tribal center within the next 25 to 40 years. If the tribe doesn't relocate, they must create expensive structures to protect tribal buildings and the structures eliminate the streamside habitat important to fish.

"The river is our life, so we have to stay connected to it. But our first concern is protecting the people," said Mary Leitka, tribal chairwoman for the Hoh Tribe.

## **Puyallup Tribe**

### *Salmon Usage Of Puyallup River Estuary*



Blake Smith, left, and Terry Sebastian, Puyallup tribal fisheries staff, seine young salmon in Tacoma's Commencement Bay.

Every spring, young salmon descend from the tributaries of the Puyallup River and move into the river's estuary. With the aid of Pacific Coastal Salmon Recovery Program funding, the Puyallup Tribe is examining how those salmon utilize what was

once one of the largest and most productive estuaries in Puget Sound.

"What most people think of as the Tacoma waterfront really is the Puyallup River estuary," said Blake Smith, biologist with the Puyallup Tribe of Indians. "The estuary has been industrialized a lot in the last 100 years, but it's still an estuary. Salmon still use it for the same reasons they used it 10,000 years ago."

The tribe is beach seining several sites around the estuary, tracking when and where juvenile salmon are. "We're only limited by the fact that there are few places along the shoreline where you can actually deploy a beach seine," said Smith. Once a week, the tribe samples five sites around Commencement Bay. Some of the sites sit below Port of Tacoma cranes and ocean-going ships.

The Puyallup Tribe also conducts spawning surveys throughout the Puyallup River watershed, which includes the White and Carbon rivers and hundreds of smaller tributaries. Additionally, the tribe operates a smolt trap in the river to track out-migrating juvenile salmon.

"By collecting data at so many points in the salmon's life cycle, we not only have a better idea of how many salmon are likely to come back in the future, but also what kind of habitat is important to them," said Smith. "Lost and degraded habitat, which is common where we are beach seining, is the single biggest reason for depressed salmon runs."

## **Lower Elwha Klallam Tribe**

### *Road Abandonment Project Aids Salmon*



Removing part of an old logging road along the Clallam River will help protect salmon habitat.

It's not often that removing a road will provide better access, but for fish it does just that.

Salmon and trout in the Clallam River now have more access to spawning and rearing habitat

after an old logging road along the river was partially removed and closed in August. The joint project between the Lower Elwha Klallam Tribe and the Washington Department of Natural Resources involved removing landfill, culverts and a bridge along the nearly 1-mile stretch of road near Clallam Bay.

"This was an old logging road that had essentially become unnecessary," said Mike McHenry, fisheries habitat manager for the Lower Elwha Klallam Tribe. "In order to improve salmon habitat along a portion of the Clallam River, we decided to take out as much of the road as possible, remove any fish barriers and replant native vegetation."

Two culverts and the dirt covering them were removed from the road. In their place, large ravines now dissect the road, allowing two unnamed streams to flow into the Clallam River. With better access to the tributaries, salmon and trout can now reach important spawning and rearing habitat. Removing the clay landfill reduces the risk of sediment flowing into the river, degrading water quality and possibly harming salmon spawning nests.



A 60-foot bridge that crossed the Clallam River also was removed. The bridge was dismantled and the large wood beams used to make the span were placed in the river to help create logjams. Those logjams will provide shelter for juvenile fish and slow the stream, creating pools and riffles essential for spawning salmon. The Clallam River supports coho and chum salmon populations, as well as steelhead.

Portions of the road were graded at different slopes, and the entire stretch also was seeded with grass and covered with hay to control erosion.

“The plan is to let nature take over this area and allow what’s left of the road to become part of the landscape,” said Eric Carlsen, public works engineer for the Washington Department of Natural Resources (DNR). “This was a great cooperative project, because this work will improve habitat for fish and wildlife along this stretch of the river.”

The tribe’s portion of the work – removing the bridge and placing the logs in the stream – was paid for in part with Pacific Coastal Salmon Recovery Program funding. DNR provided \$76,240 for the state’s portion of the project.

“By removing this old road, we have reduced the risk of sediment flowing into the river and further degrading the habitat, and we have limited access to some sensitive areas,” McHenry said. “This project will benefit salmon and trout populations in the Clallam. The hope is we can do more cooperative habitat restoration projects in the near future.”

## Future Funding Needs

The need for tribal resources is critically important as the region moves forward to develop a comprehensive salmon recovery plan through the Shared Strategy, a process that cannot succeed without meaningful tribal participation at all levels. In addition, tribes need resources to ensure recovery efforts in their watersheds are robust. Tribes are essential partners in salmon recovery, with needs that generally fall into three categories: infrastructure for policy and planning; regional integration and technical assistance; and restoration projects to protect and rebuild salmon habitat. Backed by solid systems of accountability and a strong strategic coordinating function provided by their NWIFC, the tribes ensure that salmon recovery resources directly benefit the salmon.

Pacific Coastal Salmon Recovery Program funding provided to western Washington tribes from FY 2000 to FY 2004 has enabled the tribes to begin realizing their appropriate role as central participants in wild salmon recovery efforts. Full participation in this long-term effort will be dependent on adequate future funding.

For FY 2006, the treaty tribes in western Washington are seeking at least \$9 million in Pacific Coastal Salmon Recovery Program funding to help further bridge huge unmet needs for building internal capacity. This funding will enable tribes to continue critical work on watershed assessments that include assessing habitat conditions, conducting in-stream flow studies, and analyzing water quality and quantity factors related to salmon productivity. Other types of salmon restoration projects and activities that could be conducted include projects to address factors limiting salmon production in watersheds, habitat and stock monitoring, and adaptive management monitoring, research, assessment and application.



Skokomish tribal fishermen harvest chum salmon on Hood Canal.





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